United States Environmental Protection Agency
Region 5
POLLUTION REPORT

Date: Wednesday, December 31, 2003
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Subject: Initial POLREP
Lindsay Light Building
161 East Grand, Chicago, IL

POLREP No.:	1	**Site #:**	YL
Reporting Period:		**D.O. #:**	
Start Date:	11/28/2003	**Response Authority:**	CERCLA
Mob Date:		**Response Type:**	
Completion Date:		**NPL Status:**	Non NPL
CERCLIS ID #:		**Incident Category:**	
RCRIS ID #:		**Contract #**	

Site Description

The Lindsay Light Building is located at 161 East Grand Avenue at the intersection of St. Clair and Grand Avenue in Chicago, Illinois. This area is called Streeterville. On the west, the building is bordered by Michigan Avenue. Immediately adjacent to the 161 East Grand Building on the west is the Intercontinental Hotel. To the south is an office building, to the east are restaurants, on the north, restaurants and a mixed-use high-rise building with retail, and condos.

The 161 East Grand Building is a four-story commercial building that has been the subject of numerous investigations because of its role in gas mantle manufacturing in the early 1900's. 161 East Grand is one of the former gas mantle manufacturing locations for the Lindsay

Chemical Company, which refined thorium containing ores and made incandescent gas mantles for home and street lighting. Another Lindsay manufacturing location was 316 East Illinois, which was the subject of a potentially responsible party clean-up during the 1990's of 28,828 tons of thorium-contaminated soils. The gas mantle manufacturing occurred from at least 1910 until 1936 at 161 East Grand and 316 East Illinois. Sometime after 1932, Lindsay Light moved to West Chicago, Illinois and was later purchased by American Potash, who in turn, was purchased by Kerr-McGee Chemical Company.

USEPA initially investigated the 161 East Grand building in 1981 and then again in 1983, 1984, and 1993. These investigations documented areas of elevated gamma radiation in the building. In 1993, the Agency for Toxic Substances and Disease Registry (ATSDR) advised the building owner to either vacate and seal or remediate one office. In 1993, USEPA advised the building manager to move the janitor□s supplies from the basement area near a contaminated chimney.

Gas mantle manufacturing involved dipping gauze mantle bags into solutions containing thorium nitrate and small amounts of cerium, beryllium, and magnesium nitrates. The principal ingredient in thorium nitrate is radioactive thorium, specifically, thorium-232 and thorium-228. Thorium-232, which is the parent of the Thorium Decay Series, has a half-life of 14 billio years. Thorium-228 has a 2-year half-lite. Several daughter products of concern for lung exposure are produced by radon-220 (thoron, half-life 56 seconds), a gaseous decay product of Thorium-232. The principal source of contamination at this Site is believed to be the Thorium Decay Series.

With the permission of the building owner, in March 2001, USEPA again surveyed portions of the building. USEPA established background levels at about 7,000 cpm. Survey meter readings showed levels on the second floor up to 800,000 counts per minute (cpm). The second floor contamination was located directly over, and irradiated, a receptionist□s chair on the first floor. Survey meter readings showed levels on the fourth floor to 460,000 cpm.

Generally Radon-220 decay product levels in the building did not exceed a criterion of 0.02 Working Level (WL), however, where the building owner s contractor in 2001 had removed a portion of a chimney the radon levels were as high as 0.361 WL. The building owner□s contractor had not sealed the bottom of the chimney. The open chimney apparently was the source of the high radon levels and radon-220 gas continued to diffuse into the surrounding basement. USEPA took swipe and bootie samples and found removable (trackable) material in the basement near the chimney area.

On July 18, 19, and 23, 2002, the building owner had Radiation Safety Services, Inc. (RSSI) measure radiation levels in the building. USEPA received a copy of this report via e-mail on December 18, 2002. The RSSI survey concluded, in part:

The results of the survey show evidence of radiation levels above background levels at some locations in the building. The bottom of the chimney contains debris, which may have fallen from higher portions of the chimney.

Current Activities

On November 21, 2003, USEPA met with the building counsel and contractors (Brandenburg and RSSI) to discuss the remediation of the basement chimney area and the second floor above the receptionist. The building owner planned to conduct the basement chimney and second floor cleanup over the Thanksgiving holiday weekend. The basement cleanup involved plugging the bottom of the open chimney with bricks and mortar. The removal of the source of gamma exposure from the second floor was postponed until the Friday and Saturday following Christmas 2003.

The building owner voluntarily, on November 28, 2003, sealed the open contaminated chimney. Although, the building owner did not submit a health and safety plan or detailed work plan, the Region 5 On-Scene Coordinator (OSC) and Senior Health Physicist (SrHP) agreed to observe the work. The building owner□s contractor built a temporary containment structure around the open chimney. Consistent with the parties□ prior discussion, although the OSC and SrHP did not enter the containment area, they could observe the work through the clear visqueen. Also, consistent with the prior discussions, the building owner□s contractor gave USEPA a sample of the contaminated material vacuumed from the chimney. USEPA visually observed the work from 7:00 am to 5:30 pm on November 28.

On December 26 and 27, the building owner□s contractor worked on the second floor over the receptionist□s desk. The Region 5 OSC and SrHP were present during the second floor work but they, could not see inside the containment structure and could not view any of the work. The OSC and Sr HP could hear the different tools being used. They did not enter the containment structure during the cleanup work. When the OSC requested a sample of the removed contaminated material, the building owner refused.

Next Steps

USEPA plans to exchange data with the building owner. USEPA will send copies of our sample results from the November 28, 2003 chimney work and RSSI/building owner will send us a formal report.

USEPA has telephoned Kerr-McGee representatives and requested that Kerr-McGee give USEPA a sample of the contaminated material removed from the second floor before off-site disposal.

USEPA will request that the building owner allow USEPA to conduct confirmatory swipe and radon sampling in the basement, reception area, and second floor, if it is not included in the formal report.

Sometime in the near future, USEPA, the building owner, and the Chicago Fire Department will meet to discuss precautions necessary in the event of a fire due to the contamination existing in 161 East Grand.

Key Issues

The building owner□s contractor reported that the cleanup action on December 26 and 27 showed that there was contamination in the 2nd floor subfloor. Whether this was bonded

(□fixed□) to the subfloor and structural elements of the building is not known since the building owner/RSSI has not yet provided any post-remediation sampling or survey results. Neither is it known if there was any loose (□removable□) radioactivity present, either in the subfloor area or the dropped ceiling above the receptionist. Although a potential for release into the environment exists by remodeling, maintenance, or fire, presently, given the ongoing business in the building, USEPA declined to issue an order to compel cleanup and the building owner declined to voluntarily enter into a consensual administrative order. As a result, with respect to the cleanup of the contamination directly above the receptionist, USEPA repeatedly urged the building owner to cleanup the contamination, commented on the building owner□s cleanup proposal and expressed concern that the building owner□s contractors cleanup criteria were not protective of human health.

With regards to the sealing of the basement chimney with bricks, USEPA was unaware that the chimney was unsealed for the past two years and that until it was sealed on November 28, 2003 releases to the environment of thorium particulates and its decay products may have existed. If confirmatory swipe and radon sampling are performed, it may show that the immediate threat of release from this part of the structure has been abated.

Only portions of the building have been surveyed for radiation, additional undiscovered radioactive materials may be present in the building.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
Intramural Costs				
Total Site Costs	$0.00	$0.00	$0.00	0.00%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

Disposition of Wastes

Kerr-McGee has agreed to transport and dispose of all thorium-contaminated wastes.

Waste Stream	Quantity	Manifest #	Disposal Facility

www.epaosc.net LindsayLightBuilding